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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/715,787	11/17/2000	Peter A. Barany	NORT0072US(12383RRUS02U)	9500

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EXAMINER

MEW, KEVIN D

ART UNIT	PAPER NUMBER
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2664

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DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/715,787

Applicant(s)

BARANY ET AL.

Examiner

Kevin Mew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 13, 17-19 and 30-35 is/are rejected.
- 7) ☒ Claim(s) 5-12, 14-16, 20-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Detailed Action

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-4, 13, 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hakansson et al. (US Publication 2004/0062274).

Regarding claim 1, Hakansson discloses a method of interleaving data over a plurality frames (**SID frames are block interleaved**, see lines 1-12, paragraph 0027), comprising:

interleaving the data according to a first algorithm (**full-rate SID frame interleaving scheme**, see lines 1-2, paragraph 0037 and Fig. 5) over plural frames communicated over a wireless channel (**GSM wireless TCH/traffic channel**, see line 2, paragraph 0047, and lines 1-4, paragraph 0057) for a first set of data (**full-rate SID frame**, see lines 1-2, paragraph 0037 and Fig. 5); and

interleaving the data according to a second algorithm (**half-rate SID frame interleaving scheme**, see lines 1-2, paragraph 0038 and Fig. 6) over plural frames communicated over the wireless channel (**GSM wireless TCH/traffic channel**, see line 3, paragraph 0047, and lines 1-4, paragraph 0057) for a second set of data (**half-rate SID frame**, see lines 1-2, paragraph 0038 and Fig. 6).

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Regarding claim 2, Hakansson discloses the method of claim 1, wherein interleaving the data according to the first or second algorithm comprises interleaving speech data (**half-rate speech and full-rate speech**, see lines 1-4, paragraph 0012 and Figs. 5 and 6).

Regarding claim 3, Hakansson discloses the method of claim 1, wherein interleaving the data according to the first or second algorithm comprises interleaving over frames of a multiframe (**see the interleaved TDMA frames in a multiframe in Figs 5 and 6**, and lines 1-2, paragraph 0037 and lines 1-2, paragraph 0038).

Regarding claim 4, Hakansson discloses the method of claim 3, wherein interleaving over frames of the multiframe comprises interleaving over a General Packet Radio Service multiframe (It is inherent GPRS is the data service of the GSM system disclosed in Hakansson that the interleaved TDMA frames disclosed in Figs. 5 and 6 are in a GPRS multiframe).

Regarding claim 13, Hakansson discloses the method of claim 3, wherein the multiframe comprises plural blocks (**see the multiframe that comprises of 2 blocks, one block from Last Speech frame to NoTX frame, and another block from SID frame to First Speech frame**, in Figs. 5 and 6) and each block comprises plural frames (**see the TDMA frames in each block in Figs. 5 and 6**), each frame containing plural bursts (**see the bursts in each frame in Figs. 5 and 6**), the data being carried in data frames interleaved over bursts in the plural frames (see lines 1-12, paragraph 0027 and Figs. 5 and 6), the method further comprising:

receiving an end-of-data indicating frame to indicate that a data frame is the last data frame (**see Last Speech frame in Figs 5 and 6**); and

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interleaving the end-of-data indicating frame according to predetermined algorithms (see lines 1-2, paragraph 0037 and lines 1-2, paragraph 0038 and Last Speech frame in Figs. 5 and 6),

wherein interleaving the data frames according to the first and second algorithms and the end-of-data indicating frame according to the predetermined algorithms enables the end-of-data indicating frame to end within the same block carrying the last data frame (see the Last Speech frame in Figs. 5 and 6).

Regarding claim 17, Hakansson discloses a system (see **TRAU, BTS and MS in Fig. 3**) for communicating over a wireless channel (see lines 1-4, paragraph 0057) in a mobile communications network (**GSM wireless system**, see line 3, paragraph 0047), comprising:

an interface (see **BTS, Fig. 3**) adapted to receive traffic data frames from a half-rate mobile station (see lines 3-4, paragraph 0012, and **MS, Fig. 3**); and

a controller (**Transcoding and Rate Adaptation Unit, TRAU**, see lines 3-4, paragraph 0048) adapted to interleave a first data frame over plural bursts according to a first algorithm (see lines 1-2, paragraph 0037 and Fig. 5) and to interleave a second data frame over plural bursts according to a second algorithm (see lines 1-2, paragraph 0038, and Fig. 6).

Regarding claim 18, Hakansson discloses the system of claim 17, wherein the traffic data frames comprise speech (see lines 1-4, paragraph 0012 and Figs. 5 and 6).

Regarding claim 19, Hakansson discloses the system of claim 17, wherein each data frame is interleaved over four bursts (see lines 1-4, paragraph 0096).

Claim Rejection - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hakansson in view of Chang et al. (US Publication 2001/0040883).

Regarding claims 30, 32, 35, Hankansson discloses a system, and an article comprising at least one storage medium containing instructions (**Transcoding and Rate Adaptation Unit, TRAU**, see lines 3-4, paragraph 0048) that when executed cause a system to:

receive traffic over a wireless channel portion (**receives GSM wireless TCH/HS traffic from a mobile station via a wireless interface**, see line 3, paragraph 0047, and line 3, paragraph 0012) from a first mobile station (see MS, Fig. 3) involved in half-rate communication (see lines 3-4, paragraph 0012, and MS, Fig. 3);

detect that the first mobile station has entered discontinuous transmission mode (**performing discontinuous transmission by detecting periods of source data inactivity**, see lines 1-2, 5-6, paragraph 0027) ; and

Hankansson does not explicitly show the system would multiplex traffic from a second mobile station onto the wireless channel portion while the first mobile station is in discontinuous transmission mode. However, Chang discloses that mobile stations would statistically multiplex the speech and/or data traffic to form channels and subchannels for transmitting (see lines 10-14, paragraph 0045 and lines 1-9, paragraph 0046) when

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significant periods of inactivity is detected in a traffic channel (see lines 1-10, paragraph 0068). Therefore, it would have been obvious to one person of ordinary skill in the art at the time the invention was made to combine the adaptive multi-rate wireless communications system of Hakansson with the statistical multiplexing method of Chang such that a second mobile station would multiplex speech and data traffic (**second type of traffic**) onto the channel being occupied by an idle first mobile station such as the statistical multiplexing method at the time of channel activity taught by Chang. The motivation is do so is to dynamically allocate available resources to traffic and control channel functions because it would allow maximum flexibility in allocation of available resources.

Regarding claim 31, Hakansson discloses the article of claim 30, wherein the instructions when executed cause the system to receive speech traffic from the first mobile station (see lines 2-3, paragraph 0047, lines 1-4, paragraph 0012, and Fig. 3).

Regarding claims 33-34, Hakansson discloses a data signal embodied in a carrier wave and containing instructions (**Codec mode command indicating the channel mode (TCH/AFS or TCH/AHS) to use**, see lines 1-14, paragraph 0049) that when executed cause a system to:

interleave a first speech traffic frame (**full-rate SID frame interleaving scheme**, see lines 1-2, paragraph 0037 and Fig. 5) from a mobile station (see MS, Fig. 3) over plural bursts according to a first algorithm (see Fig. 5); and

interleave a second speech traffic frame (**half-rate SID frame interleaving scheme**, see lines 1-2, paragraph 0038 and Fig. 6) from the mobile station (see MS, Fig. 3) over plural bursts according to a second algorithm (see Fig. 6).

Allowable Subject Matter

3. Claims 5-12, 14-16, 20-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 5, the data is carried in data frame N starting in block B(x), and wherein interleaving the data frame N according to the first and second algorithms comprises interleaving the data frame N over blocks $B(x + 2k)$ and $B(x + 2k + 2)$, where $k = \text{INT}(N/2)$.

Regarding claim 20, data frames I, $I = 0$ to M, are received starting in block B(x), the controller adapted to interleave data frame I over blocks $B(x + 2k)$ and $B(x + 2k + 2)$, where $k = \text{INT}(I/2)$.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure with respect to interleaving data frames in a wireless channel.

US Patent 6,574,202 to Himayat et al.

US Patent 5,663,957 to Dent

US Patent 6,608,827 to Austin

US Patent 5,729,538 to Dent

US Patent 6,535,497 to Raith

US Patent 6,084,865 to Dent

US Patent 5,327,576 to Uddenfeldt et al.

US Publication 2001/0024432 to Zehavi et al.


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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 703-305-5300.

The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RICKY NGO
PRIMARY EXAMINER

KDM
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